

Advanced Manufacturing Collaborative Facility

STATEMENT OF WORK

C-1 Introduction

The Contractor shall, in accordance with the provisions of this Contract, accomplish the design and construction of an Advanced Manufacturing Collaborative (AMC) Facility to be located on the campus of the University of South Carolina-Aiken (USC-A) in Aiken, South Carolina.

The DOE has aging government furnished facilities for the Savannah River National Laboratory (SRNL) to perform the Department of Energy's mission needs. The AMC Facility will support DOE's missions to: 1) complete the safe cleanup of radioactive and chemical waste from Cold War activities including nuclear and energy research; and 2) comply with legally enforceable environmental regulatory requirements while driving safety improvements and cost effectiveness in nuclear chemical manufacturing technology.

The commercial chemical and manufacturing sector currently uses a range of proven, advanced technologies which deliver significant improvements in cost, worker and process safety, product quality, environmental stewardship, and workforce training. Adoption and utilization of these technologies is needed by the Office of Environmental Management (EM) to better manage risk, improve program performance, increase safety posture and reduce life cycle costs and schedule.

To meet these challenges, the DOE needs an AMC Facility that will provide a modern, accessible Research and Development (R&D) environment to integrate and exploit the unique attributes of national laboratories, commercial entities, and educational institutions, to stimulate innovative thinking and to adapt innovative technologies to accomplish DOE missions.

This Statement of Work (SOW) provides the information necessary to design and build new laboratory and office space with designated public areas (i.e. classroom, offices, and conference space, etc.) that will meet advanced manufacturing research goals while providing highly flexible and reconfigurable laboratory space. It is envisioned that the AMC Facility will be a facility ranging between 40,000 to 70,000 square-feet of space to support EM/SRNL missions while enhancing and expanding collaborations with academia, industries, and other government agencies.

The Contractor shall conduct all work in a manner that fully complies with all applicable laws, regulations, and terms and conditions of the Contract.

C-2 Statement of Work

2.1 General

The Contractor shall work with DOE-Savannah River Operations (DOE-SR) to develop a proposal for design and construction of a modern, state-of-the-art advanced manufacturing building referred to as the AMC Facility. The Contractor shall work with DOE-SR and its representatives to analyze the functional and operating requirements described in this SOW and the attached *Draft Functional & Operational Requirements and Design Guidance for the Advanced Manufacturing Collaborative* and develop a proposal that may be executed with DOE-SR as either Not-to-Exceed (NTE) or Firm-Fixed-Price (FFP). The Contract may be executed separately for singly-design-build or design-build. The facility is to be constructed on the campus of USC-A and shall be constructed to applicable building codes and standards, including meeting as practical the highest level in Leadership in Energy and Environmental Design (LEED) version 4 certification, and the expectation of a 60 year useful life. The DOE envisions a facility between 40,000 and 70,000 square feet depending on the design approach.

2.2 Overview of Space Required

The AMC Facility will consolidate aspects of SRNL research, development, engineering and testing focused on advanced manufacturing. It will combine them with forward looking digital technologies into a single location providing attractive, versatile, open and inviting collaborative space integrated into modern laboratory facilities for teaming with industrial and academic partners practicing advanced manufacturing concepts.

2.3 Performance Parameters

- Non-radiological work including technology research development, pre-pilot and scale-up
- Modern workspaces and architecture that inspires creativity and innovative solutions to national chemical manufacturing challenges that benefit government and the private sector
- Independent power structure with ability to test new inverter and transformer technologies associated with building and plant power (this could include the ability to induce resistive faults and induce harmonics on inverter-based technologies)
- Multi-story space with open, closed and flexible laboratories, high bay area and offices
- Meeting, amenity, and collaboration spaces
- Communication equipment, network and data visualization capabilities
- Designed to meet or exceed criteria sufficient to achieve as practical the highest level certification in Leadership in Energy and Environmental Design (LEED™) version 4 certification
- Facilitate occupancy no later than December 2023

2.4 Space Programming

Three types of general spaces are required: general purpose office space, laboratories, and support space. Each of these spaces is described in more detail below.

2.4.1 General Purpose Office Space

Space shall be provided for SRNL staff and collaborating industrial and academic partners. Space shall be provided for no fewer than 120 occupants. All offices require telephone and computer network lines. Wireless networking technology (Wi-Fi) should be utilized, where appropriate, in conjunction with physical network lines. Multiple space types are required:

Technical Staff: Office space shall include a mix of private and open offices (to suit tenant needs), along with small-meeting rooms, informal gathering and break areas, and places for storage and copy/mail support. Additionally, phone-booth space is required to allow for small 1-3 party teleconferencing.

Academic and Industry Personnel: Office space shall include flexible open space for classroom training and informal collaborative work areas, meetings, and events. This space will also function as flexible space for summer student offices, study areas, poster sessions, and informal gatherings.

2.4.2 Laboratories

Research, development and demonstration space shall be designed for open concept, multi-function laboratories suited to frequent adjustment/reconfiguration to accommodate changing investigative purposes. These labs should include storage space for clean supplies including chemicals, consumables, PPE, and other related items and separate dedicated storage for other related R&D work such as samples, controls and standards. Multiple space types are required:

Wet Chemistry Labs – Testing and analysis of chemicals and materials require water, ventilation and piped utilities. Wet laboratory space must accommodate simultaneous and separate ventilation and utility connections at individual laboratory modules to ensure both the reliability and accuracy of results as well as occupant safety throughout the space.

Dry Labs/High Bay/Grid Lab – Accommodate project-specific work patterns and scientific equipment; provide reliable working conditions in a reconfigurable environment. Engineering fabrication laboratory and electrical testing space shall be provided for specific work with dry stored materials, electronics, and/or

large instruments with few piped services, and for electro-mechanical fabrication and development.

2.4.3 Support Space

Supporting activities across multiple space types are required:

Conference Rooms – Small conference rooms will be used to host formal small-scale meetings/workshops, outreach events, and educational programs. Rooms will be used for video teleconferencing capability (VTC) conferences, open conferences/breakout areas and for small formal conferences. Small formal conference room will be provided. The VTC conference rooms shall have state-of-the-art video conferencing capabilities. Conference rooms shall support advanced audio-visual technology and be designed for easy equipment upgrades with minimal rebuilding. Several of these rooms will also serve as classrooms for both onsite and distance learning.

Conference rooms shall be equipped with network access capabilities to support the maximum occupancy of the room.

Storage – Facility shall accommodate adequate storage rooms designed for supply and file storage.

Administrative Support – Facility shall accommodate space to support printers, plotters, communications equipment, shipping and receiving, and break room(s) (i.e. coffee bar, etc.).

2.5 Space Program and Functional Relationships

The attached *Draft Functional & Operational Requirements and Design Guidance for the Advanced Manufacturing Collaborative* contains detailed information on all major program spaces. Functional relationships will be further vetted with the selected Contractor for definition and colocation of organizations and functions.

2.5.1 Site

To meet the key performance parameter for location, a land parcel, 4.50 acres in size, on the campus of USC-Ain Aiken, South Carolina has been selected as the site.

2.5.2 Utilities

Utility supply and configuration will depend on building configuration at the chosen USC-A site, functional requirements and design. Utilities are available for tie-in within a reasonable distance from the site. The Contractor shall be responsible for obtaining utilities from municipal entities.

Loss of normal electrical power should not preclude the AMC Facility from performing its functions. Preference shall be given to non-petroleum-based emergency generators, some equipment will require uninterruptable power supply coverage to prevent loss during generator startup.

2.5.3 Communications Systems

The AMC Facility shall be constructed to support connections into the Management and Operating (M&O) contractor's for SRNL unclassified data/telephone systems, and the security systems. It shall also have the capability to support a minimum of 100G Network.

2.5.4 Built-in Furnishings

Built-in furnishings shall be provided for the AMC Facility. The grade of furnishings will be coordinated with the selected Contractor.

2.5.6 Operations and Maintenance

The facility shall be designed to accommodate ease of routine maintenance and operations. The M&O contractor for SRNL will be responsible for maintenance of installed systems of the facility once construction is completed and turned over for operations.

2.5.7 Codes and Standards

In general, the AMC Facility, its systems, and the site shall be designed for compliance with applicable state and municipal building codes. In some instances, design may require implementation of DOE or other consensus Standards. Further detail is provided in the attached *Draft Functional & Operational Requirements and Design Guidance for the Advanced Manufacturing Collaborative*.

2.5.8 Leadership in Energy and Environmental Design (LEED) Certification

The U.S. Green Building Council (USGBC) works to promote buildings that are environmentally responsible, profitable, and healthy places to live and work. USGBC has developed the LEED Green Building Rating System as a voluntary, consensus-based national standard for developing high-performance, sustainable buildings. Therefore, the AMC Facility shall be constructed to meet the highest level as practical LEED version 4 certification in support of Executive Order 13834. The minimum certification target expected for the AMC Facility is Gold.